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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/641,931	08/18/2000	Christian Lanctot	2003390-0001	7406

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EXAMINER	
EPPERSON, JON D	
ART UNIT	**PAPER NUMBER**
1639	22

DATE MAILED: 06/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/641,931	Applicant(s) LANCTOT ET AL.	
	Examin r Jon D Epperson	Art Unit 1639	

P.C Copy

-- The MAILING DATE of this communication appears on the cov r she t with the correspondenc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 November 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-43* is/are pending in the application.

4a) Of the above claim(s) *9,10 and 18-43* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 11-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Please note: The Group and/or Art Unit location of your application in the PTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to **Group Art Unit 1639**.

Status of the Application

1. Receipt is acknowledged of a Response to a Restriction Requirement and Preliminary Amendment, which was dated on November 18, 2002 (Paper No. 18).

Priority Claims

2. No foreign or domestic priority is claimed. Therefore, the effective filing date of the claims is the filing date of the case i.e., August 18, 2000.

Status of the Claims

3. Claims 1-43 are pending in the present application.

4. Applicant's response to the Restriction and/or Election of Species requirements in Paper No. 18 is acknowledged (i.e., Applicant elected Group I, claims 1-17) and claims 18-43 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected inventions, there being no allowable generic or linking claim (see below i.e., ***Response to Restriction and/or Election of Species***).

5. Claims 9-10 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected species (see below i.e., ***Response to Restriction and/or Election of Species***).

6. Therefore, claims 1-8, 11-17 are examined on the merits in this action.

Response to Restriction and/or Election of Species

7. Applicant's election of Group I (claims 1-17) in Paper No. 18 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

8. Applicant's election of species in Paper No. 18 is also acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election of species has also been treated as an election without traverse (MPEP § 818.03(a)).

9. As a result, the restriction requirement and/or election of species is still deemed proper and is therefore made FINAL.

Information Disclosure Statement

10. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98 (b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be

incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on the form PTO-892, they have not been considered.

11. The references listed on applicant's PTO-1449 form have been considered by the Examiner. A copy of the form is attached to this Office Action.

Specification

12. Please amend claim 43 to incorporate the SEQ ID Nos. for sequences SAAPLVTAMCRSGNVS and SAAPLVTAMCGSGNVS in the claim.

13. The use of the trademarks has been noted in this application (e.g., see specification, page 28, line 13). They should be capitalized wherever they appear and be accompanied by the generic terminology. Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner, which might adversely affect their validity as trademarks.

14. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Objections to the Claims

15. Claim(s) 1 are objected to because of the following informalities:

A. Claim(s) 1 contain(s) the phrase "when present into a suitable host" and should read "when present in a suitable host" i.e., the word "into" should be changed to "in". Correction is requested.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

16. Claims 1-8, 11-17 are rejected under 35 USC 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant is directed to the Guidelines for the Examination of Patent Applications Under the 35 USC 112, ¶ 1 "Written Description" Requirement, Federal Register, Vol. 66, No. 4 pages 1099-1111, Friday January 5, 2001. This is a written description rejection.

These claims encompass a broad genus. For example, claim 1 outlines method steps for selecting a nucleic acid having a "desired feature" using an exogenous nucleic acid that has the ability to overcome a "suppressive condition" that is indicative of the desired feature. The scope of this claim includes an infinite number of "desired features" and "suppressive conditions"

wherein the specification and claims do not place any limits on either of these two terms. Furthermore, dependent claim 5 goes on to recite the use of a "fetter-protein" (see 35 U.S.C. 112, second paragraph rejection, below) wherein the only limitation imposed on said "fetter-protein" is that it possesses an "important" viral function wherein said important viral functions are not defined. The scope of this claim includes an infinite number of methods for producing and/or using an infinite number of structural variants wherein no distinguishing structural attributes are provided for any of the potential "fetter-proteins". The specification and claims do not place any limit on the number of atoms, the types of atoms, or the manner in which said atoms might be connected to form the fetter-proteins nor do they provide any three-dimensional structures. Although the specification discloses a largely undefined preferred embodiment wherein one potential "important" function is defined (see Specification, page 10, lines 21-25, "according to an embodiment of the present invention, a fetter-protein is bound to a viral structural protein in order to block the normal packaging functions of the viral structural protein"), the specification and claims do not provide ***any*** guidance as to what structural features ***all*** of these fetter-proteins share. Consequently, it is not possible to determine *a priori* which proteins would been encompassed by these broad claims because there is no common structural attributes that can link together ***all*** of these fetter-proteins i.e., there is no teaching that would allow a person of skill in the art to determine *a priori* ***all*** the different types of proteins that should be included in this enormous genus from the few examples provide by applicants.

The general knowledge and level of skill in the art do not supplement the omitted description because specific, not general, guidance is what is needed. Since the disclosure fails to describe the common attributes or characteristics that identify ***all*** of the members of the genus

or even a substantial portion thereof, and because the genus is enormous and highly variant, listing examples broad categories of examples like proteins that block the normal packaging functions (see specification, page 10, lines 21-24) is insufficient to teach the entire genus. Consequently, one of skill in the art would reasonably conclude that the disclosure fails to provide a representative number of species to describe this enormous genus. Thus, applicant was not in possession of the claimed genus.

17. Claims 1-8, 11-17 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a signal trap screening method employing a Sindbis virus with a dysfunctional signal peptide, but the specification does not reasonably provide enablement for a signal trap screening method employing ***any*** viral genome having ***any*** desired feature using ***any*** suitable host wherein ***any*** suppressive condition is used to mark the success or failure of the screening method. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to the invention commensurate in scope with these claims. This is an enablement rejection.

There are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is "undue". Some of these factors may include, but are not limited to:

(1) the breadth of the claims;
(2) the nature of the invention;
(3) the state of the prior art;
(4) the level of one of ordinary skill;
(5) the level of predictability in the art;
(6) the amount of direction provided by the inventor;

(7) the existence of working examples; and
(8) the quantity of experimentation needed to make or use the invention based on the content of the disclosure.

See *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

(1-2) The breadth of the claims and the nature of the invention: These claims encompass a broad genus. For example, claim 1 outlines method steps for selecting a nucleic acid having a "desired feature" using an exogenous nucleic acid that has the ability to overcome a "suppressive condition" that is indicative of the desired feature. The scope of this claim includes an infinite number of "desired features" and "suppressive conditions" wherein the specification and claims do not place any limits on either of these two terms. Furthermore, dependent claim 5 goes on to recite the use of a "fetter-protein" (see 35 U.S.C. 112, second paragraph rejection, below) wherein the only limitation imposed on said "fetter-protein" is that it possesses an "important" viral function wherein said important viral functions are not defined. The scope of this claim includes an infinite number of methods for producing and/or using an infinite number of structural variants wherein no distinguishing structural attributes are provided for any of the potential "fetter-proteins". The specification and claims do not place any limit on the number of atoms, the types of atoms, or the manner in which said atoms might be connected to form the fetter-proteins nor do they provide any three-dimensional structures. Furthermore, the nature of the invention cannot be determined in light of the enormous breadth of the claim.

(3 and 5) The state of the prior art and the level of predictability in the art: Although the signal trap method has been used in a few systems (see 35 U.S.C. 102/103 rejections

below), the art is not sufficiently established to provide method employing ***any*** viral genome having ***any*** desired feature using ***any*** suitable host wherein ***any*** suppressive condition is employed. For example, Applicants claims would encompass retroviral vectors substituted with any nucleic acid. "A major problem that has hampered the use of retroviruses as library vectors has been the tendency of viruses with different inserts to exhibit substantially different titers ... Most RNAs have not been selected for compatibility with the viral life cycle, and so it is not surprising to find wide variation in the efficiency of their reverse transcription in vivo" (see Seed, B "Developments in expression cloning" Current Opinion in Biotechnology 1995, 6: 567-573, especially page 570, column 1, third paragraph).

(4) The level of one of ordinary skill: The level of skill would be high, most likely at the Ph.D. level.

(6-7) The amount of direction provided by the inventor and the existence of working examples: Applicants specification teaches only the use of a signal trap screening method employing a Sindbis virus with a dysfunctional signal peptide and, consequently, falls well short of the infinite number of possibilities that are currently claimed (see section (1) above).

(8) The quantity of experimentation needed to make or use the invention base on the content of the disclosure: The inventor provides no guidance beyond the aforementioned Examples taught in the specification. As a result, one of ordinary skill in the art could not predict what other types of systems could be used in this screening method and, consequently, an indeterminate quantity of experimentation would be

necessary to make and use the invention as broadly as it is claimed. There must be sufficient disclosure, either through illustrative examples or terminology, to teach those of ordinary skill how to make and use the invention as broadly as it is claimed. *In re Vaeck*, 947 F.2d 488, 496 & n.23, 20 USPQ2d 1438, 1445 & n.23 (Fed. Cir. 1991). Therefore, it is deemed that further research of an unpredictable nature would be necessary to make or use the invention as claimed. Thus, due to the inadequacies of the instant disclosure one of ordinary skill would not have a reasonable expectation of success and the practice of the full scope of the invention would require undue experimentation.

Claims Rejections - 35 U.S.C. 112, second paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

18. Claims 1-8, 11-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. For ***claim 1***, while applicant may be his or her own lexicographer, a term in a claim may not be given a meaning repugnant to the usual meaning of that term. See *In re Hill*, 161 F.2d 367, 73 USPQ 482 (CCPA 1947). The term "packaging" in claim 1 is defined to be [1] "a process by which the genetic material of a virus is encapsulated into a

virus capsid" and also defined as [2] "the steps which are normally necessary such that encapsulated viral genomes are released from a host cell into the extracellular medium" (see specification, paragraph bridging pages 11-12). The Examiner contends that "packaging" is a term of art that agrees with Applicants first definition, but not Applicants second definition (see Flint et al. Principles of Virology: Molecular Biology, Pathogenesis, and Control. Washington D. C.: ASM Press. 2000, page 452, "Incorporation of the viral genome into assembling particles is often called packaging."). Applicants have incorrectly expanded this definition to include not only the incorporation of genetic material into a virus capsid but also to include the release of said genetic material out of the virus capsid. The Examiner contends that this is repugnant to the usual meaning of the term. Therefore, claim 1 and all dependent claims are rejected under 35 U.S.C. 112, second paragraph.

B. ***Claims 5*** is rejected because the "fetter-protein" disclosed is not defined with any chemical or physical characteristic, but only by functional properties (see specification, page 10, lines 21-24, a fetter protein is "a viral protein having important viral functions") wherein the "functions" are not even specified other than to say that they are "important" for the virus. A claim to a material defined solely in terms of what it can do, or a property thereof, does not particularly point out the claimed invention. Thus, the scope is indefinite. See *ex parte Pulvari* (POBA 1966) 157 USPQ 169. Therefore, claim 5 and all dependent claims are rejected under 35 U.S.C. 112, second paragraph.

Claims Rejections - 35 U.S.C. 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

19. Claims 1-2, 11-12 and 15-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Parks et al (Parks, R. J.; Chen, L.; Anton, M.; Sankar, U.; Rudnicki, M. A.; Graham, F. L. "A helper-dependent adenovirus vector system: Removal of helper virus by Cre-mediated excision of the viral packaging signal" PNAS **1996**, 93, 13565-13570).

For ***claims 1, 15 and 16***, Parks et al (see entire document) discloses methods for using modified adenoviruses as vectors for the delivery of foreign genes in mammalian cells, which anticipates claims 1. For example, Parks et al discloses [a] providing a viral genome capable, when present in a suitable host of expressing an exogenous nucleic acid inserted therein and also capable of packaging itself into a viral particle (see page 13566, figure 1, wherein the "exogenous nucleic acid" is the "foreign gene", the "suitable host" is the "293Cre", and the nucleic acid shows that it can be packaged into a viral particle via the "arrow" pointing to the viral particle and labeled "packaged"). Furthermore, Parks et al discloses [b] providing a suppressive condition wherein said viral genome is capable of packaging itself into a viral particle only once said suppressive condition has been overcome (see page 13566, figure 1, wherein the "suppressive condition" is the

absence of a viral packaging gene products provided by the helper virus). In addition, Parks et al discloses [c] inserting an exogenous nucleic acid into said viral genome to provide a recombinant viral genome (see page 13566, figure 1, wherein the "foreign gene" is inserted into the vector to make a "recombinant viral genome"). Furthermore, Parks et al discloses [d] transfecting said recombinant viral genome into 293Cre host cells. Finally, Parks et al discloses [e] allowing said recombinant viral genome to express said exogenous nucleic acid and package itself into a recombinant viral particle, whereby product of at least one recombinant viral particle is indicative that said suppressive condition has been overcome (see page 13566, figure 1, wherein said suppressive condition is "overcome" with the help of a helper virus i.e., the helper virus provides all of the function necessary in trans for replication and packaging of an Ad vector).

For ***claim 2***, Parks et al discloses modifying said viral genome in order to inactivate a viral gene product involved in the packaging of said viral particles (see page 13566, figure 1, "Since all functions necessary for virion formation are provided by the helper virus, the majority of the Ad sequences contained in the vector can be replaced [i.e., the viral genome is modified] by a foreign gene and other non-Ad sequences").

For ***claims 11-12***, Parks et al discloses a library of stuffer and foreign nucleic acids (see page 13455, figure 1, see also Materials and Methods).

20. Claims 1-6, 8 and 11-12, 15-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Zhang et al (US Patent No. 6,150,098) (Date of Patent is **November 21, 2000**).

For ***claims 1-2 and 15-17***, Zhang et al (see entire document) discloses methods for identifying novel secreted mammalian proteins using a signal trap with viral vectors wherein the suppressive condition that prevents viral packaging is a nutrient requirement and/or selection gene (see Zhang et al, abstract; see also columns 5-6; see also Examples).

For ***claim 3-4***, Zhang et al discloses the use of a dysfunctional signal peptide (i.e., a signal trap methodology) (see Zhang et al, columns 2, lines 48-51). See also Examples showing exogenous nucleic acids without termination codons in frame and downstream of a translation start site.

For ***claim 5***, Zhang et al discloses fusion polypeptides (see Zhang et al, column 6, line 34).

For ***claim 6***, Zhang et al discloses nucleic acid with proteolytic activity (see Zhang et al, column 9).

For ***claim 8***, Zhang et al discloses retrovirus nucleic acid (see Zhang et al, column 5, line 57).

For ***claims 11-12***, Zhang et al discloses cDNA libraries (see Zhang et al, paragraph bridging columns 4-5).

Claim Rejections - 35 USC § 103

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

> such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

22. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

23. Claims 1-2, 8 and 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parks et al (Parks, R. J.; Chen, L.; Anton, M.; Sankar, U.; Rudnicki, M. A.; Graham, F. L. "A helper-dependent adenovirus vector system: Removal of helper virus by Cre-mediated excision of the viral packaging signal" PNAS **1996**, 93, 13565-13570) and Huang et al (US Patent No. 5,217,879) (Date of Patent is **June 8, 1993**) (see IDS Paper No. 2).

For ***claims 1-2, 11-12, 15-16***, Parks et al teaches all the limitations stated in the 35 U.S.C. 102(b) rejection above (incorporated in its entirety herein by reference), which anticipates claims 1-2, 11-12 and 15-16 and, consequently, also renders obvious claims 1-2, 11-12 and 15-16.

The prior art teaching of Parks et al differs from the claimed invention as follows:

For ***claims 8 and 13-14***, the prior art teachings of Parks et al differs from the claimed invention by not specifically reciting the use of an Alphavirus vector like Sindbis

or Semliki forest. Parks et al is deficient in that it only teaches the use of Adenoviruses (see Parks et al, abstract).

However, Huang et al teaches the following limitations that are deficient in Parks et al:

For ***claims 13-14***, Huang et al (see entire document) teaches the use of Sindbis and Semiliki Forest viral vectors (see Huang et al, abstract; see also Background Art and Summary of Invention).

It would have been obvious to one skilled in the art at the time the invention was made to use the method as taught by Parks et al with the Sindbis virus as taught by Huang et al because Parks et al requires a viral vectors that can incorporate heterologous coding sequences and Huang et al teaches that their Sindbis viral vectors can be used in precisely this manner (i.e., the references disclose analogous art). Furthermore, one of ordinary skill in the art would have been motivated to use the Sindbis virus disclosed by Huang et al because Huang et al teaches that their virus vectors can "be a useful vector for the expression of heterologous (e.g., foreign) coding sequences. First is the previously discussed wide host range of Sindbis virus, both in nature and in the laboratory. Second, Sindbis virus gene expression occurs in the cytoplasm of the host cell and is rapid and efficient. During the 8-12 hors of a typical infection at 37 °C, some 107 to 108 molecules of viral proteins are synthesized by each infected cell. Third, temperature-sensitive mutations in RNA syntheses are available that may be used to modulate the expression of heterologous coding sequences by simply shifting cultures to the non-permissive temperature" (see Huang et al, column 2, paragraph 2). Furthermore, one of ordinary

skill in the art would have reasonably expected to be successful because Parks et al requires a viral vector that can express foreign sequences and Huang et al shows a successful example of using a Sindbis virus to express foreign sequences (see Huang et al, Summary of Invention, Examples).

24. Claims 1-6, 8 and 11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al (U.S. Patent No. 6,150,098) (Date of Patent is **November 21, 2000**) and Huang et al (US Patent No. 5,217,879) (Date of Patent is **June 8, 1993**) (see IDS Paper No. 2).

For ***claims 1-6, 8, 11-12 and 15-17***, Zhang et al teaches all the limitations stated in the 35 U.S.C. 102(e) rejection above (incorporated in its entirety herein by reference), which anticipates claims 1-6, 8, 11-12 and 15-17 and, consequently, also renders obvious claims 1-6, 8, 11-12 and 15-17.

The prior art teaching of Zhang et al differs from the claimed invention as follows:

For ***claims 13-14***, the prior art teachings of Zhang et al differs from the claimed invention by not specifically reciting the use of an Alphavirus vector like Sindbis or Semliki forest. Zhang et al is deficient in that it only teaches the use of retrovirus (see Zhang et al, columns 5-6).

However, Huang et al teaches the following limitations that are deficient in Zhang et al:

For ***claims 13-14***, Huang et al (see entire document) teaches the use of Sindbis and Semiliki Forest viral vectors (see Huang et al, abstract; see also Background Art and Summary of Invention).

It would have been obvious to one skilled in the art at the time the invention was made to use the method as taught by Zhang et al with the Sindbis virus as taught by Huang et al because Zhang et al requires a viral vectors that can incorporate heterologous coding sequences and Huang et al teaches that their Sindbis viral vectors can be used in precisely this manner (i.e., the references disclose analogous art). Furthermore, one of ordinary skill in the art would have been motivated to use the Sindbis virus disclosed by Huang et al because Huang et al teaches that their virus vectors can "be a useful vector for the expression of heterologous (e.g., foreign) coding sequences. First is the previously discussed wide host range of Sindbis virus, both in nature and in the laboratory. Second, Sindbis virus gene expression occurs in the cytoplasm of the host cell and is rapid and efficient. During the 8-12 hors of a typical infection at 37 °C, some 107 to 108 molecules of viral proteins are synthesized by each infected cell. Third, temperature-sensitive mutations in RNA syntheses are available that may be used to modulate the expression of heterologous coding sequences by simply shifting cultures to the non-permissive temperature" (see Huang et al, column 2, paragraph 2). Furthermore, one of ordinary skill in the art would have reasonably expected to be successful because Zhang et al requires a viral vector that can express foreign sequences and Huang et al shows a successful example of using a Sindbis virus to express foreign sequences (see Huang et al, Summary of Invention, Examples).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jon D Epperson whose telephone number is (703) 308-2423. The examiner can normally be reached Monday-Friday from 9:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on (703) 306-3217. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9307 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-2439.

Jon D. Epperson, Ph.D.
May 29, 2003

BENNETT CELSA
PRIMARY EXAMINER